PROCEDURE

Bladder exstrophy repair

Bladder exstrophy repair is surgery to place an exposed bladder inside the body and reconstruct the urinary tract.

PURPOSE
Close the bladder and improve urinary control and kidney protection

PROCEDURE TYPE
Therapeutic surgery to reconstruct the bladder, pelvis, and urinary outlet

WHERE IT IS DONE
Operating theatre

ANAESTHESIA
General

HOW LONG IT TAKES
Several hours to most of a day, based on reconstruction

PREPARATION
Fasting, medication review, blood tests, and anaesthetic assessment

RECOVERY
Hospital stay days to weeks; no driving until cleared

MAIN RISKS
Infection, urine leakage, urinary blockage, and fistula

RESULTS
Closure assessed immediately; continence and kidney outcomes emerge over years

Overview

Bladder exstrophy repair is reconstructive surgery, usually performed during infancy or childhood. It may also be needed later to revise an earlier repair.

In bladder exstrophy, the bladder develops open on the outside of the lower abdomen. The pelvic bones, urinary opening, genitals, abdominal wall, and sometimes the bowel outlet may also be affected.

Surgery places the bladder inside the pelvis and closes the bladder and abdominal wall. It may also bring the pelvic bones together and reconstruct the urethra, which carries urine out of the body.

Repair may involve one major operation or several planned procedures. The approach depends

on anatomy, age, previous surgery, kidney and bladder function, and the specialist centre's experience.

Why the procedure is performed

The main goals are to protect the bladder and kidneys, close the lower abdomen, and support future urinary control.

Surgery may:

Later procedures may reconstruct the bladder neck, improve bladder capacity, treat urine flowing backward toward the kidneys, or create a channel for catheter drainage.

- Close and protect the exposed bladder
- Reconstruct the abdominal wall, urethra, and genitals
- Position the bladder inside the pelvis
- Improve urine storage and future urinary control
- Correct leakage, blockage, or failure of an earlier repair

Who should and should not have it

Most babies born with bladder exstrophy are considered for repair. Older children or adults may need further reconstruction if a previous repair has broken down or if bladder storage, drainage, continence, or kidney protection needs improvement.

Surgery may be delayed if you or your child are not medically stable enough for a long anaesthetic. Reasons include serious infection or significant breathing, heart, or other medical problems that need treatment first.

A particular repair may be unsuitable if the bladder is too small or damaged to reconstruct safely, kidney function is severely reduced, or previous surgery has changed the available tissue. Another reconstruction or urinary diversion may then be considered.

Decisions should involve a team experienced in bladder exstrophy. Ask what is planned now, what may be needed later, and what level of urinary control is realistic.

How to prepare

Follow the treating facility's instructions because preparation varies by age and procedure.

You will receive fasting instructions. For a baby, these specify when breast milk, formula, other milk, clear liquids, and solid food must stop. Do not extend fasting unless the surgical team tells you to.

Tell the team about all medicines, vitamins, supplements, allergies, and previous reactions to anaesthesia. They will explain whether to pause any medicine, including blood thinners like warfarin or apixaban . Do not stop prescribed medicine without instructions.

Preparation may include blood and urine tests, kidney imaging, an anaesthetic assessment, and appointments with urology and orthopaedic surgeons. Blood may be prepared in case transfusion is needed.

Ask about the expected hospital stay and whether pelvic osteotomy is planned. This involves cutting and repositioning the pelvic bones and may require special positioning, a cast, traction, or an external frame afterward.

What happens during the procedure

General anaesthesia keeps you or your child unconscious and free from pain. Monitoring continues throughout surgery.

The surgeon separates the bladder from surrounding skin, moves it inside the pelvis, and closes it. The lower abdominal wall is repaired over the bladder.

The urethra and external genitals may be reconstructed during the same operation or later. Bladder-neck reconstruction is often delayed until the bladder has grown and urinary control becomes a practical goal.

An orthopaedic surgeon may perform pelvic osteotomy to bring the pelvic bones closer together and reduce tension on the closure.

Drainage tubes may include ureteric stents, which drain the kidneys, and a catheter through the urethra or lower abdomen. Dressings, a cast, traction, or an external frame may also be used.

Recovery and what to expect afterward

Pain is expected, especially after pelvic osteotomy. Medicine may initially be given through a vein and later by mouth. Tell the hospital team if pain is not controlled.

Fluids and feeding restart gradually based on the operation and bowel function. Nausea, reduced appetite, and constipation can occur after anaesthesia and pain medicine.

Movement may be restricted to protect the repair. Special positioning, traction, a cast, or a frame may be needed for several weeks after osteotomy. Follow instructions for lifting, bathing, catheter care, and wound protection.

An adult cannot drive after general anaesthesia and should not drive while taking sedating medicine or while movement is restricted. Arrange safe transport, including suitable seating for any cast or frame.

Return to work or school is gradual. Caregivers may need time away from work because catheter care, lifting restrictions, and appointments may continue after discharge.

Risks and possible complications

Possible complications include:

Further operations may be needed as a child grows. Long-term genital, sexual, fertility, and body-image concerns can also occur and should be addressed through age-appropriate specialist follow-up.

- Bleeding, sometimes requiring transfusion
- Wound, urinary, or pelvic bone infection
- Urine leaking from the repaired bladder or urethra
- Opening of the wound or bladder closure
- A fistula, which is an abnormal channel that leaks urine
- Narrowing or blockage of the urethra or drainage tubes
- Bladder stones or difficulty emptying the bladder
- Urine flowing backward toward the kidneys
- Ongoing leakage or limited bladder growth
- Problems related to anaesthesia, osteotomy, casts, or frames

Results and follow up

The surgeon can assess bladder and abdominal wall closure during the operation, but long-term results cannot be judged immediately.

Catheters and stents remain while tissues heal and are removed according to the surgical plan. Follow-up may include wound checks, urine tests, kidney and bladder ultrasound scans, and

blood tests for kidney function. Later tests may assess bladder capacity, pressure, emptying, and urine flow.

Urinary control develops over time and may require further surgery, catheterisation, medicine, or continence support. Kidney monitoring usually continues into adulthood, even after successful healing.

Alternatives

No nonsurgical treatment can close an exposed bladder, but there may be choices about timing and reconstruction.

Complete primary repair combines several parts in one long, complex operation. Staged repair separates bladder closure, urethral or genital reconstruction, and bladder-neck surgery, requiring several anaesthetics and recovery periods.

Delayed closure with careful protection of the bladder may be used when immediate surgery is unsafe or specialist care is unavailable, but it is not definitive treatment.

Urinary diversion creates another route for urine, sometimes through an abdominal stoma. It may provide dependable drainage when reconstruction is unsuitable, but can require an appliance or regular catheterisation.

Choosing no reconstruction leaves the bladder exposed and does not address drainage, continence, infection, or kidney concerns. It is generally considered only in exceptional circumstances after specialist discussion.

When to call your healthcare team

Attend all scheduled wound, catheter, imaging, and kidney checks. Contact the surgical team sooner for:

Seek emergency help for trouble breathing, loss of consciousness, severe uncontrolled bleeding, or a sudden severe change in alertness.

- Fever or worsening redness, swelling, warmth, or discharge
- Increasing pain not controlled by the prescribed plan
- New or increasing urine leakage around the wound
- Little or no urine draining through a catheter
- A catheter, stent, cast, or frame that moves or comes out

- Persistent vomiting, poor fluid intake, or marked abdominal swelling
- A cold, pale, blue, swollen, or unusually painful foot after pelvic surgery

Common questions

Will I be asleep?

Yes. The procedure uses general anaesthesia, with close monitoring throughout.

Can I drive home?

No. An adult cannot drive after general anaesthesia. Arrange safe transport, including suitable seating if a cast or pelvic frame is present.

How painful is it?

Pain is expected, particularly after pelvic osteotomy. The team will use and adjust a planned combination of pain medicines.

When will I know whether it worked?

Closure is assessed immediately. Bladder growth, kidney protection, emptying, and urinary control are evaluated over months and years.

Will more surgery be needed?

Often, yes. Repairs may be intentionally staged, or later surgery may address bladder capacity, continence, reflux, blockage, fistula, or genital reconstruction.

Will urinary control be normal?

Outcomes vary. Some people achieve good control, while others need scheduled catheterisation, medicine, further surgery, or continence products.

Sources

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